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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 01/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/598,406

Applicant(s)

HOPPEN, GERHARD

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Remark*

- This Office Action is in response to applicant's amendment filed on November 9, 2001, which has been entered as paper number 9.
- By this amendment, claims 1-18 have been amended and claims 19-23 have been newly added by the applicant.
- The rejections to claims 1-18 under 35 USC 112, first paragraph, set forth in the previous Office Action **still hold**.
- The rejections to claims 1-18 under 35 USC 112, second paragraph, set forth in the previous Office Action are withdrawn except for claims 10-16.

### *Election/Restrictions*

1. Newly submitted claim 21 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the newly submitted claim is directed to a general objective lens for a microscope that does not rely on the feature concerning focusing property in DUV and IR wavelength ranges and does not rely on the feature concerning the focal points being the same.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Accordingly, claim 21 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

2. Claims 1-20, and 22-23 remain pending in this application.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 2872

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**4. Claims 1-18, and newly added claim 19-20, 22-23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

The reasons for rejection are set forth in the previous Office Action dated May 9, 2001 and it is repeated as follows.

The specification fails to teach the reasons as to why would the microscope objective simply contains lens groups made of quartz and fluorite, which are common lens materials for making ultraviolet lens, are capable of focusing both ultraviolet light (235 nm) and infrared light (760 nm) at the same focal point. It is generally understood in the art that the lens materials have dispersion effect that causes the ultraviolet light and the infrared light, having very different wavelengths, to refract through the lenses in very different direction. It is therefore expected that the focal point for the light of these very different wavelengths would be different. The specification only gives a spectral image focus curve but totally silent about how to achieve this feature physically. The specification also fails to teach the physics behind that enables such feature. Is this then an inherent property for the lens materials? If so, then this feature is expected to be implicitly met by any lens groups made of quartz and fluorite. Clarifications are required. But no new matter should be added. Claims 2-18 inherit the rejection from their base claim.

The newly submitted claims 19-20 and 22-23 recites the same feature concerning the focal lengths being the same for both DUV wavelength and IR wavelength which is therefore rejected for the same reasons stated above.

Claim 19 recites the microscope further comprises "an IR laser autofocus system to provide the IR wavelength and auto-focusing" **which suggests** that in order for the focal point or focal length to be

Art Unit: 2872

the same at both DUV and IR wavelengths **some sort of auto-focusing mechanism** which normally involves moving the lens elements or the lens groups within the objective lens is employed to achieve the focusing property.

It is acknowledged that the applicant has pointed out the specification has shown certain examples for the designs of the objective lens and has shown spectral image locus curves for the objective lens however these are not enough to enable one skilled in the art to make or use the objective lens to achieve the properties as claimed. It is unperceivable to one skilled in the art that by simply designing a penultimate element within an objective lens with a **plurality** of lens elements would be able to compensate and correct the dispersion and aberration of light having very different wavelengths so that the same focal point for both light beams of DUV wavelength and IR wavelength may be achieved.

**Clarifications are required.**

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 1-18 and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 1 has amended to include the phrase "lens elements having quartz glass and fluorite compositions" which is indefinite and makes the scope of claim unclear. The term "composition" usually means a chemical mixture of the materials. It is not clear if this phrase means the lens elements are made of material with mixture of quartz glass and fluorite, if so then this feature is not supported by the specification.

Art Unit: 2872

The phrase “a DUV focus” and the phrase “an IR focus” recited in claims 10-16 are indefinite since it is not clear how do these focus relate to the “same focal point” recited in their respective based claim.

Claim 19 is indefinite and incomplete since it is not clear how does the “IR laser autofocus system” structurally and logically relate to the objective in particularly in the function of achieving the same focal point for the both cited wavelength ranges.

Claims 2-18 and 20 inherit the rejection from their respective based claims.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1, 17-18 and newly added claims 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hayashi (PN. 5,144,475).**

Hayashi teaches an objective lens system (121 in Figure 12) for use in a microscope that is operable in ultraviolet or far ultraviolet wavelength ranges wherein the objective lens system comprises a plurality of lens elements or groups (11, 12, 13, 14, 15, 16 in Figure 3) that is made of *quartz* and *fluorite*, (please see Figures 3, 6, 8, 10 and 12 and the abstract). It is implicitly true that the objective lens is capable of focusing light having wavelength in the ultraviolet and far ultraviolet range which is known in the art to be between 1 nm to 375 nm. This certainly includes the range of 200 to 300 nm and 235 nm.

Hayashi also teaches that the objective lens system comprises an element (15) next to the last element, that serves as the penultimate element, which has a configuration that is concave at both sides,

Art Unit: 2872

(please see Figure 3). The radius of curvature for the concave surface at the object side is smaller than the radius of curvature for the surface at the image side.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the objective lens also has an infrared focus point that is the same as the focus point for the ultraviolet light. However the instant application fails to teach adequately as to how does the objective achieve such feature. This feature therefore cannot be addressed now. Since it is not clear if such feature is an inherent property for the lens materials such as *quartz* and *fluorite* or is an inherent property of the biconcave configuration of the penultimate element or other non-inherent reasons. If this feature is the result of the inherent properties then it is met by the cited Hayashi reference.

With regard the feature concerning the IR laser autofocus system since the claim fails to structurally and logically define how does the microscope operate with the laser autofocus system, such feature cannot be examined now.

**9. Claims 2, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hayashi as applied to claim 1 above, and further in view of the patent issued to Ono et al (PN. 5,142,410).**

The reasons for rejection are set forth in the previous Office Action dated May 9, 2001.

**10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hayashi and Ono et al as applied to claim 2 above, and further in view of the patent issued to Shafer et al (PN. 5,717,518).**

The reasons for rejection are set forth in the previous Office Action dated May 9, 2001.

Art Unit: 2872

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hayashi as applied to claim 1 above, and further in view of the patents issued to Ono et al and Shafer.

The reasons for rejection are set forth in the previous Office Action dated May 9, 2001.

*Response to Arguments*

12. Applicant's arguments filed on November 9, 2001 have been fully considered but they are not persuasive.

In response to applicant's arguments concerning the 35 USC 112, first paragraph, rejection to the enablement of achieving same focal point for both the DUV and IR wavelengths, the examiner respectfully disagrees for the reasons stated above. The examiner respectfully wishes that the applicant could provide more explanation including both theoretical basis and experimental practice to support the claimed property. Simply showing the curve and the designing characteristics do not enable a general worker in the art to reasonably make or use the objective since the applicant is somehow suggesting but not clearly teach if an auto-focusing mechanism is involved.

*Conclusion*

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action



Art Unit: 2872

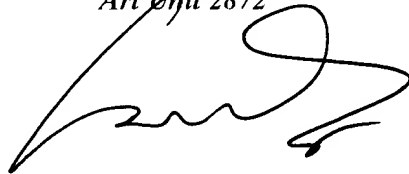
is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Audrey Y. Chang*  
*Primary Examiner*  
*Art Unit 2872*

A handwritten signature in black ink, appearing to be 'Audrey Y. Chang', written over the printed name and title.

A. Chang, Ph.D.  
January 4, 2002